ABNORMAL PAP SMEARS

Deborah Jalbert, MBA, PA-C
Clinical Assistant Professor
UTHSC, San Antonio
PA PROGRAM

Learning Objectives

- **Identify general procedures used in performing a Pap smear.**
- **Recognize characteristics of the two main categories of general interpretation results for Pap smears.**
- **Identify risk factors for the development of cervical dysplasia and carcinoma.**
- **Recognize procedures for managing cervical squamous cell abnormalities.**

Pap Smear Testing

- **50 - 60 million American women undergo Pap smear testing each year**
- **3.5 million will have cervical cytologic abnormality**
- **Optimal time for testing is midmenstrual cycle. Try to avoid testing during menses with cytobrush technique. Less problem with liquid based technique**

Pap Smear Testing

- Use nonlubricated speculum
- Cytologic sampling before bimanual examination
- Two methods of collection
  - Cytobrush
  - ThinPrep
- ThinPrep detects greater amount abnormal cells

Pap Smear Testing

- **Most cervical lesions arise from the transition zone of the squamocolumnar junction**
- **90% cervical cancers are squamous cell cancers**
- **10% cervical cancers are more aggressive adenocarcinoma**

Squamous metaplasia in cervix

Bethesda System

- **Widely used standard for interpreting laboratory results**
- **Revised terminology since 2001**
- **Better understanding of role of HPV as cervical cancer precursor**

New Terminology

- **Bethesda system 1991**
  - **Includes term benign cellular changes**
- **Bethesda system 2001**
  - **Benign cellular changes has been eliminated: now interpreted as negative for intraepithelial lesions/malignancy**

New Terminology

- **Bethesda system 1991**
  - **Equivocal cells grouped into one category: ASCUS (atypical squamous cells of undetermined significance)**
- **Bethesda system 2001**
  - **New category, ASC-H (atypical squamous cells, cannot exclude high-grade lesion), i.d.’s cells likely precancerous**

New Terminology

- **Bethesda system 1991**
  - **Includes term atypical squamous cells favor reactive changes**
- **Bethesda system 2001**
  - **This term has been eliminated**

Interpretation -Two Main Categories

- **Category One**
  - **Negative for intraepithelial lesions or malignancy**
  - **May include findings of bacterial, fungal and viral organisms**
  - **May include non-neoplastic findings, such as inflammation or atrophy**

Interpretation-Two Main Categories

- Category Two
  - Epithelial cell abnormalities
    - Squamous cells or glandular cells

Interpretation-Two Main Categories

- Category Two (cont')
  - Two Types of Atypical Squamous Cells
    - ASCUS = atypical squamous cells of undetermined significance
    - ASC-H = atypical squamous cells, cannot exclude high-grade squamous intraepithelial lesion (SIL)

Squamous Cell Abnormalities

- **Low-grade squamous intraepithelial lesion (LSIL)**
- **HPV/mild dysplasia/cervical intraepithelial neoplasia (CIN I)**
- **High-grade squamous intraepithelial lesion (HSIL)**
- **Moderate and severe dysplasia, carcinoma in situ (CIN II and CIN III)**

Glandular Cells

- **Atypical glandular cells (AGC)**
  - **Includes endocervical, endometrial and not otherwise specified (AGC-NOS)**
  - **Favor neoplasia**
  - **Atypical glandular cells can progress to endocervical adenocarcinoma in situ**

Cervical Intraepithelial Neoplasia (CIN)

- **Abnormal cellular morphology, including cell size, shape, and clustering patterns**
- **Graded as CIN I, II, OR III**
- **CIN I regresses more often**
- **CIN III progresses with greater frequency**
- **Carcinoma in situ (CIS) develops next**

Risk Factors

- **Number of sexual partners**
  - **Positively correlates with CIS incidence**
  - **> 5 sexual partners have a 5-fold excess risk compared to 1 sexual partner**

Risk Factors (cont’)

- **Age at first intercourse**
  - **Adolescents more at risk for STD’s, greater susceptibility to invasion by HPV, thus increased risk for cervical dysplasia**

Risk Factors (cont’)

- **Methods of contraception**
  - **Oral contraceptive users at higher risk, probably because not using protection against STD’s**
  - **Barrier methods associated with reduced risk**

Risk Factors

- HIV
  - 2-3 times greater risk of invasive carcinoma
- Smoking
  - Increased risk, elevates with number of years and packs of cigarettes smoked

Managing ASC

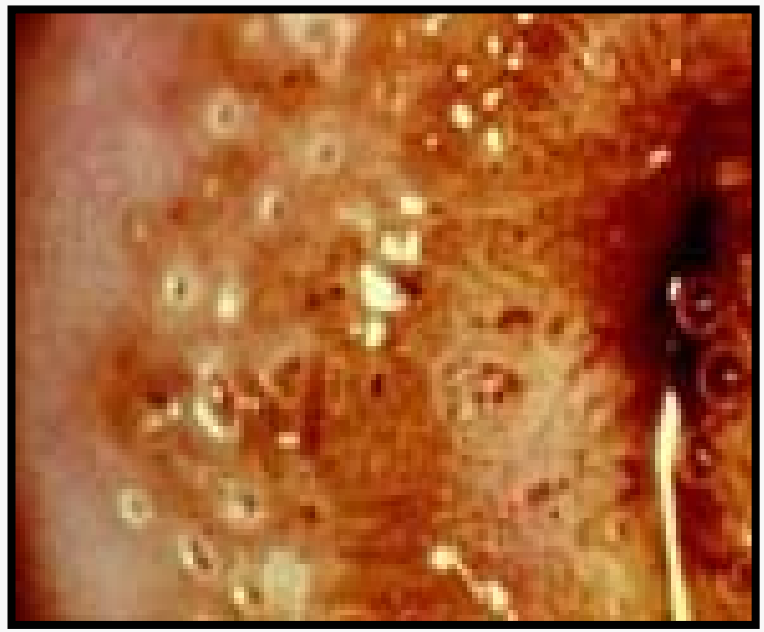
- **ASC have a 5% - 17% chance of having CIN II,III**
- **ASC-H have a 24% - 99% chance of having CIN II, III**
- **Yet risk of invasive cervical cancer is 0.1% - 0.2%**
- **Immunosuppressed women at highest risk; postmenopausal women at lower risk**

Managing ASCUS

- **Performing repeat cytology or immediate colposcopy are both acceptable**
- **Suggest one repeat cytology, if still ASCUS, perform colposcopy**
- **Repeat cytologies every 3 months until two are negative, then return to screening every 12 months**

Management Of ASC-H

- **Also do HPV DNA testing**
- **Immediate colposcopy**
- **Follow treatment guidelines if colposcopy confirms CIN II, III**



Colposcopy of cervix

LSIL - Low Grade Squamous Intraepithelial Lesion

- **15% - 30% with LSIL will have CIN II, III on cervical biopsy**
- **Recommend immediate colposcopy**
- **Postmenopausal women and adolescents with LSIL can be managed more conservatively**

HSIL – High Grade Squamous Intraepithelial Lesion

- **70% - 75% chance of having biopsy confirmed CIN II, III**
- **1%-2% chance of having invasive cervical cancer**
- **Immediate colposcopy**

AGC – Atypical Glandular Cells

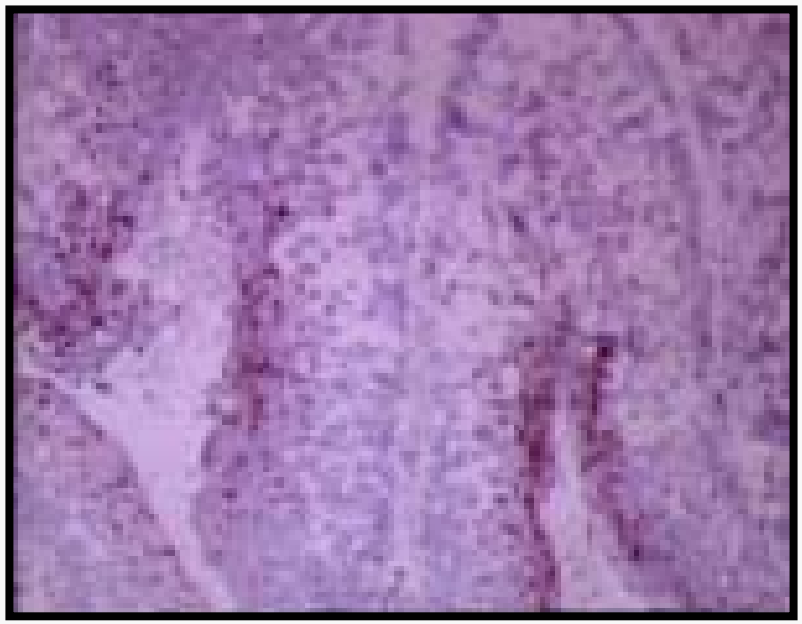
- **Greater risk of cervical neoplasm**
- **Immediate colposcopy with endocervical sampling**
- **If no invasive disease, should then undergo cold-knife conization**
- **AGC-NOS: Repeat Pap every 4-6 months until 4 consecutive negative reports**

HPV Testing

- **Should be done on all women with abnormal Pap smears**
- **Can distinguish between HPV lesions that are low risk for cervical cancer and those at high risk**

HPV Testing

- **Normal Pap with a positive HPV is also considered at high risk for cervical cancer**



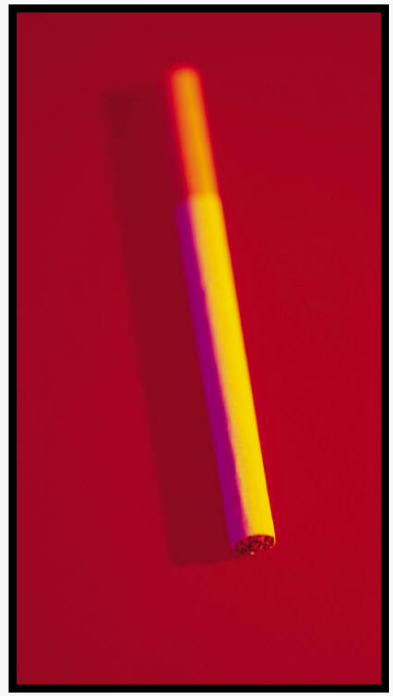
Cervical condyloma-HPV

Case Study

A 19-yr-old female college student comes to the health center for a Pap smear and refill of her birth control pills. She has been sexually active since age 16 and has had 7 lifetime sexual partners. She does not always use a condom.

Case Study (cont’)

This 19-yr-old patient smokes half a pack of cigarettes a day and drinks alcohol on weekends. She is gravida 0. Physical exam is normal. Pap smear, Chlamydia, gonorrhea cultures are done.



Case Study (cont’)

Seven days later the cultures come back negative. Pap smear shows atypical squamous cells of undetermined significance. Patient returns for Pap results, says she is going home for summer, will follow up at home.

Case Study (cont')

14 months later patient returns to college health center with vaginal discharge. Admits no follow up on last abnormal Pap. Repeat cultures and Pap are done. Culture results are positive for Chlamydia. Pap shows low grade squamous intraepithelial lesion, CIN I.

Case Study (cont’)

Patient treated for Chlamydia, referred to GYN clinic for colposcopy. Clinic biopsy report from colposcopy shows mild dysplasia with no endocervical lesions. HPV typing is positive for high risk lesion. Patient elects loop electrosurgical excision procedure (LEEP).

Case Study Discussion

- **Patient factors for high risk of development of cervical cancer**
  - **Smoking**
  - **>5 sexual partners**
  - **Inconsistent condom use**
  - **STD**
  - **Unreliable with appointments/care**

Case Study Discussion (cont’)

- **Original guidance to follow up and repeat Pap was appropriate. Patient non-compliant.**
- **Colposcopy is next acceptable immediate procedure. Colposcopy showed mild dysplasia localized to external cervical area and no endocervical lesions.**

Case Study Discussion (cont’)

- **LEEP procedure/cryosurgery appropriate**
- **Patient needs repeat Pap every 3 months until 3 normal reports**
- **Patient still at high risk due to positive HPV**
- **Needs counseling**

Summary

- General procedures used in performing a Pap smear
- Characteristics of the two main categories of general interpretation results for Pap smears
- Risk factors for the development of cervical dysplasia and carcinoma
- Procedures for managing cervical squamous/glandular cell abnormalities